

Chopper Set Up Could be the Key to Higher Kernel Processing Scores this Season

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As summertime starts to heat up and the first cutting of hay is nearing completion, I know that there are many farmers looking ahead to harvest season. For most livestock and dairy producers, corn silage harvest can be considered the single most important time of the year. Whether you use a custom harvester or own your own chopper, making sure your corn silage gets put up at the right stage of maturity and moisture and is processed correctly are very important. Putting up a mediocre crop of corn silage could be the difference in purchasing thousands of dollars in unnecessary supplemental feed or less milk in the tank.

In recent years, the amount of corn silage added to feed rations has been on the rise. Even though commodity prices remain low, the use of whole crop silage as a majority of the rations still increases. Yet one part of this process has taken years to become relevant in the chopping process, kernel processing. Hopefully by now, most of you are aware of a Corn Silage Processing Score (KP score). The KP score is basically how well the corn silage, mainly the corn kernel is processed during the chopping process.

The more processing, tearing and pulverizing of the kernel you can get the better. This kernel processing helps to make the starch in the kernel more readily available for the cows to digest. The starch content from corn silage can make up a significant part of the total starch needed in a balanced ration. This simply means the more starch you can make available from your corn silage, the less rolled corn you will have to add to balance the ration. Thus saving you money in the end.

The amount of starch available and the digestibility varies quite a bit when it comes to each hybrid variety and in early or late season corn. This is why the setup of your forage harvester and its kernel processor can be the difference in great silage and average silage. The optimal KP score is 70 and above. An adequate score is from 50 – 70, and below 50 would be considered poor kernel processing. The average over all of the samples collected and analyzed at the labs in North America is in the low 50s. The average is trending in the right direction over the last few years, but we all still have lots of room for improvement.

There are lots of aftermarket KP rolls on the market from several different manufacturers, but many of the forage harvester manufacturers have made real progress in their stock KP as well. It is my opinion that most of the new choppers purchased today can be properly set up and adjusted to receive the optimal 70+ KP score. Aftermarket KP's can cost upwards of \$30,000 and most will do an exceptional job processing. What they won't tell you is how much harder they make the chopper work, and that most likely the stock KP bearings in the

chopper will not hold up to the extra abuse. This can lead to fires and totaling out the KP and accelerator in the cutter. WE all know that can get really expensive!

I have made a checklist of the places to check on your chopper to ensure you are doing everything you can to produce optimal kernel processing this season. To me, it all starts with the corn head. Make sure your knives are sharp, and all adjustments have been made for optimal crop flow to the feed rolls. Be sure you check your springs, or whatever your harvester uses for feed roll tension. The pre-compression of the crop before it gets to the cutting drum is key for the best and most consistent chop quality. At least once per day you should sharpen your knives on the cutting drum. Dull knives lead to poor chop quality and make your chopper work a lot harder in the process.

Another really critical step in producing high quality feed is making sure your shear bar is properly adjusted. I recommend this be adjusted in the morning after knife sharpening and at least one more time during the day. Adjusting the shear bar twice per day would be the minimum I would recommend. One adjustment that often gets overlooked is the proper adjustment of the drum bottom. The floor beneath the cutting drum has a huge effect on the crop flow and how far you can blow out of the spout. This adjustment should be checked every time you change out your knives. You can find the proper spacing for these adjustments in your operator's manuals.

The next step in the crop flow of your cutter is to the KP rolls. A properly adjusted and aligned KP is essential in the crop flow process and can be the source of many plugs. The ideal alignment should be where the crop hits the top roll on the lower third of the roll. This will ensure continuous crop flow, and this is crucial to your differential speed of the rolls as well. Many KP's run at a 30% differential speed. Meaning that the top roll is turning 30% faster than the bottom roll. This leads to the tearing and slicing of the leaves and kernels. Changing your differential speed may just change the way you chop and process your corn this year.

The KP gap spacing is the other crucial part of properly processed corn silage. The gap distance is going to vary by machine, brand of rolls, hybrid variety and the silage end user. Feedlots tend to not process or have minimal processing done due to cheaper cost of harvesting. I believe that these feedlots are spending money every day, unnecessarily, on added rolled corn to their feed rations. Some operators run their KP gaps as close as they can, .5 mm, while others are over 3 mm. This is where it will take time and testing to figure out what gap spacing you should be running in each field and hybrid variety. DO NOT be afraid to stop your cutter, get out and check what is coming out of the spout. You should not find any whole kernels in the pile. If you are finding several whole kernels then you probably need to look at tightening up the KP.

Before the season, you should also check the calibration of the KP gap to make sure what the monitor in the cab reads is the same gap the KP is set to. I also recommend at least once per week, or every knife change, to inspect the KP rolls for any damage or excessive wear.

You can have everything set and adjusted perfect, but if you are chopping with worn out rolls you will not be doing a good job processing.

This may seem like a lot, but a few hours spent properly adjusting your chopper can lead to higher feed quality in the pile and a lower cost of the feed in the feed bunk. So before you go out and spend tens of thousands on new KP rolls this season, stop and check to make sure that your cutter is properly adjusted first. You just may be surprised as to what your current chopper and rolls are capable of! Good luck and be safe this harvest season!